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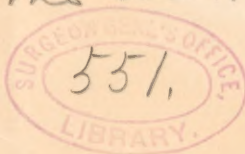
TRANSPLANTATION OF SKIN IN PLASTIC

OPERATIONS OF THE EYELID.

By Walter B. Johnson, M.D.

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— presented by the author —



TRANSPLANTATION OF SKIN IN PLASTIC OPERATIONS ON THE EYELID.¹

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The transplantation of skin flaps in plastic operations upon the eye-lid, by the method in vogue at present, is the result of a gradual development in the size of the portions of new tissue to be transplanted. The method of supplying new dermal tissues where loss of skin had resulted from accidents, burns or other causes, was originally introduced by Professor J. L. Reverdin, of Geneva, Switzerland, in the year 1869. It was called "skin grafting" and consisted in the application to granulating surfaces of very small portions of epidermis snipped from the skin of a living subject, care being taken that the dermis should not be included in the graft. The grafts were applied to the diseased surfaces and resulted in the formation of new cicatricial tissue, which was undoubtedly the product of the proliferation of the transplanted elements. Thiersch, Pollock, Bryant and others adopted the method, increasing the size of the grafts and including the cutis as well as the cuticle, believing that the proliferation occurred from the dermis as well as the epidermis. Fiddes reported cases in the *Lancet* of new tissue formation resulting from the proliferation of epidermal scales scraped from the skin by a long bistoury. The method rapidly came into general use; it is, however, only skin grafting, the implantation of a nucleus for the formation of cicatricial tissue and not transplantation of true skin.

The implantation upon granulating or fresh cut surfaces

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of large skin flaps from adjoining parts was introduced by Tagliacozzi many years before the possibility of skin grafting was thought of. He carefully dissected a portion of skin from a point near the surface to be covered, retaining at its base a pedicle through which the flap was to receive its nutrition. Modifications applicable to various locations were suggested by different operators. The procedures recommended for the plastic surgery about the eye-lids were not wholly satisfactory in consequence of the unsightly cicatrices at the point of removal of the flap, the thickening about the pedicle and the frequency of ulcerative processes intervening which resulted in still more serious deformity than existed prior to the operation.

In 1878, Mr. J. R. Wolfe, of Edinburgh, reported in the *London Medical Times and Gazette*, of June 3, a new method of "the transplantation of skin flaps from distant parts without pedicle." Following this, operations were successfully performed and reported by Wadsworth, Noyes, Aub, Mathewson, and others. The many advantages of the procedure led to its immediate adoption by ophthalmic surgeons. The object of the operation is the transplantation of healthy skin flaps to the required situation, the agglutination and healing by first intention, the permanent adhesion of the healthy new tissue at the point of implantation, and the relief of the existing deformity.

The skin selected for transplantation must, as nearly as may be, approximate the conditions and quality of the skin at the location to which it is to be transplanted; an allowance of fully one-third must be made for shrinkage of the flap, all areolar tissue must be carefully removed, the flap must be dipped in tepid water and then thoroughly dried, the site of operation must be carefully prepared, and if the transplantation is to be made on the day of operation, all small blood clots and other detritus must be removed. In some cases it is desirable, especially if arteries have been tied, to allow an interval of two or three days to elapse between the time of the preparation of the wound and the application of the flap as sepsis may affect the flap if sloughing of any of the tissues

occur. Before transplantation the granulating surface must be very carefully washed and dried; the prepared flap is then applied and gently pressed into position where it will adhere like sticking plaster. The wound is then dressed; no sutures are recommended although in many of the cases reported, catgut or other sutures have been used; sheet lint compress and bandage is applied and allowed to remain *in situ* for four days. Great care should be used in removing the dressing lest the flap be torn from its new adhesion by dragging. Goldbeater skin plaster is often used next to the flap.

The following case was operated successfully by the Wolfe method:

H. T., aged 3; colored. Applied at the Paterson Eye and Ear Infirmary for treatment, stating that six months ago he had received an injury of the right eye-brow from falling upon a stone step. The injury was followed by excessive swelling and subsequent inflammation. The family physician made an incision and a large quantity of pus was evacuated. The wound closed on two occasions and re-incision was necessary. Extensive destruction of the skin of the upper eye-lid resulted from ulceration which occurred during the stages of acute inflammation and was never at any time entirely healed. The contraction of the cicatricial tissue thus formed produced complete eversion of the upper eye-lid as shown in Plate No. 1.

August 2. Upon admission the child was in apparently good physical condition. There was eczema about the face resulting from the excoriation of the ichorous discharges from the eye. The ectropion of the right upper eye-lid was so extensive that only about 3 lines separated the ciliary margin of the lid and the eye-brow. The everted palpebral conjunctiva was swollen, thickened and rough, bleeding upon the slightest touch. Almost all of the retrotarsal fold was exposed and it nearly concealed the eye-ball; there was a deep central ulcer of the cornea and a constant discharge of thick muco pus.

The patient was ætherized and an incision made exposing the frontal bone which was diseased. The carious bone was

removed and the wound dressed. After the opening closed the ulceration healed, the swelling of the lid decreased under proper diet and palliative medication. The cicatricial contraction resulted in an increased eversion of the lid.



PLATE NO. I.

September 25. The patient was again ætherized, and incision was made midway between the brow and the edge of the lid $1\frac{5}{8}$ " in length; the lid was carefully dissected, the attachment of the cicatricial bands divided and the edge of the upper lid stitched to the lower. The result of this procedure was a large gaping wound $1\frac{5}{8}$ " in length and $\frac{7}{8}$ " in width in the median line. An elliptical incision was made on the inner side of the left thigh $2\frac{5}{8}$ " in length and $1\frac{2}{8}$ " in width at the largest diameter of the ellipse. The skin within the lines of the incision was carefully dissected from the leg and all areolar tissue removed. After preparation the flap measured nearly two inches in length and about one inch in width in its widest part. The flap and the wound were rendered aseptic; four fine catgut sutures were used to unite it to the edges of the

wound, gold beater skin plaster was then placed over the new lid and the eye dressed with a compress bandage.

September 29. The dressings were removed, care being taken to prevent dragging upon the flap, the stitch uniting the eye-lids and the stitches from the end and center of the flap were carefully cut and drawn out. The transplanted skin flap seemed to have united in its new location although it presented a grayish appearance externally which looked like semi-transparent glass. The pigment deposit in the deeper layers was so dark that it appeared as if sloughing of the entire flap was imminent. There was no purulent discharge. The eye was dressed with plaster and bandaged as before.



PLATE NO. 2.

October 2. The dressings were again removed and a thin gray membrane nearly the size of the flap came away with the plaster. This was at first believed to be the flap itself. On closer inspection, however, the entire surface of the new lid presented a peculiar appearance of semi-granulation points of reddish color. The excessive pigment deposit having materially lessened, a glazing which seemed to be the result of a

deposit of thick viscid mucus indicated the formation of a new layer of epidermis. The dressings were re-applied.

October 4. The eye-lid when exposed disclosed the presence of a grayish membrane with commencing pigment spots which covered the entire field of the operation.

October 6. The membrane has assumed the appearance of newly-formed skin, the lid maintains its natural position; there has been very little purulent discharge during the recovery. After this date the skin became more natural in appearance, softness and pliability. No unfavorable symptoms occurred. There was complete relief of the deformity. The eye-lid could, not, however, be elevated to the extent of that of the fellow eye. The accompanying plate No. 2 illustrates the condition six weeks after the treatment was discontinued.